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1988 - 1989 ANNUAL REPORT

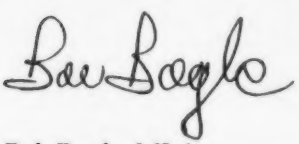
ALBERTA AGRICULTURAL RESEARCH INSTITUTE

Alberta

To the Honourable Shirley McClellan
Associate Minister of Agriculture

In accordance with the requirements of the Alberta Agricultural Research Institute Act, I have the honour to present to you the Annual Report of the Alberta Agricultural Research Institute for the operating year 1988-89.

Respectfully submitted,



Bob Bogle, MLA
Chairman
Board of Directors

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CHAIRMAN'S REPORT

I am very pleased to present the second Annual Report of the Alberta Agricultural Research Institute.

Without doubt, the creation of this Crown corporation by the Alberta Legislature in 1987 was a progressive move. The Institute is a unique agency and will, I believe, prove vitally important to agricultural research in Alberta. The purpose of the Institute is to coordinate, conduct, participate in, promote and support research in agriculture. As the Institute develops and grows, agricultural research in Alberta will become better focused and ever more successful in meeting the needs of the province's agricultural industry.

In reviewing the activities of the Alberta Agricultural Research Institute for 1988-89, I am proud to see how far it has come in such a short time through the hard work of its Board of Directors. One of the Board's major accomplishments was to finalize the operating procedures and accept applications for project support under its two main funding programs: the Matching Grants Program and the Research Coordination Program.

The Matching Grants Program aims to stimulate private sector support for agricultural research by offering matching grants (usually on a 50:50 basis). The program also provides matching grants for projects funded by other qualifying agencies. In 1988-89, 36 Matching Grants projects were supported with $832,032 from the Alberta Agricultural Research Institute and $1,093,289 from private industry and public sector organizations.

The goal of the Research Coordination Program is to encourage agricultural scientists to coordinate their work and maximize exchange of research information between researchers in the same field who work in different organizations or different disciplines. In 1988-89, four projects were funded under this program for $16,350.

The Board appointed researchers, producers and other private industry and governmental representatives to sit on the five research committees which review research proposals submitted to the Institute. The names of these committees are: Agricultural Processing, Diversification, Marketing, Production Efficiency, and Resource Conservation. The committees, chaired by Board members, evaluate project proposals, consider research priorization and forward their comments and recommendations for the Board's consideration. The Board makes the final decision on project awards. The Board plans to work with applicants in the future to ensure that top quality proposals are submitted in the Institute's priority research areas.

The Board also developed guidelines for another funding program: the Research Professorship Program. It is designed to help appropriate institutions to concentrate resources in areas of importance which are currently given limited research attention.

Research coordination is one of the Institute's most complex tasks. The Board continued to visit research facilities in the province to better understand the status of current research activities. The Board worked closely with the Department of Western Economic Diversification to participate in joint support of agricultural research.

An important federal-provincial program, the National Agricultural Biotechnology Initiative (NABI), was finalized. NABI is a three-year program involving the federal government and the four western provinces which will provide up to $50 million for support of the commercialization of agricultural biotechnology products. The Institute's Executive Director, Dr. Ralph Christian, is to be the Alberta Government representative on the NABI Advisory Board. Such joint projects focus federal and provincial monies, and allow better use of available funds. Mr. Gordon Wells, of our Board, was appointed the private sector member of the NABI Advisory Board from Alberta.

As part of its continuing efforts to expand interagency cooperation and coordination, the Board began to develop an ongoing review of agricultural research in Alberta. We plan to work closely with other agricultural research agencies on a sector-by-sector assessment of research to ensure that the needs of Alberta's agriculture and food industries are being met. Following each review, recommendations can be made to improve research priorization and coordination.

Also in 1988-89, guidelines for Board activities were further developed and policies on such important areas as intellectual property rights were refined.

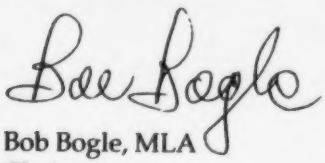
The Board of Directors has undergone several changes in membership since the Institute began. Mrs. Shirley McClellan, Dr. Bastiaan Heemsbergen, Mr. Jim Gray, Dr. Roy Berg, Mrs. Shirley Smith and Mr. Nigel Pengelly have retired from the Board. The valuable contributions of these members will be greatly missed and I wish them well in their new endeavours.

In 1988-89, Mr. Gordon Wells of Calgary was appointed as an agri-business representative. Mr. Jack Ady, MLA for Cardston, and Mr. Nigel Pengelly, the MLA for Innisfail, joined as representatives of the Alberta Legislature. Dr. Ed Tyrchniewicz, the new Dean of Agriculture and Forestry at the University of Alberta, also joined the Board. These new members all bring substantial expertise and experience to the Institute and I know the Institute will gain from their participation.

On behalf of the Board of Directors, I would like to express great appreciation for the efforts of the Honourable Peter Elzinga and the Honourable Shirley Cripps who gave full support to the Institute in 1988-89. We look forward to working closely with their successors: the new Minister of Agriculture, the Honourable Ernie Isley, and the new Associate Minister of Agriculture, the Honourable Shirley McClellan, who is a former member of our Board. We are honoured to have Mrs. McClellan as our lead minister, with responsiblity for agricultural research.

I wish to thank all Board members for their diligence and commitment to agricultural research. The advice and recommendations of the new review committee members have been invaluable in the proposal review process. Finally, I would like to acknowledge the Research Division of Alberta Agriculture, and in particular Dr. Ralph Christian, for their assistance in the everyday administration of the Institute.

The hard work and dedication of all these people made 1988-89 a successful year for the Alberta Agricultural Research Institute, and helped to advance and promote agricultural research for the benefit of Alberta's agricultural industry.



Bob Bogle, MLA
Chairman
Board of Directors

EXECUTIVE DIRECTOR'S REPORT

During 1988-89, I was pleased to serve as Executive Director during the first full operating year of the Alberta Agricultural Research Institute.

As with all new organizations, the Institute worked hard to define its role, by putting into practice ideas and priorities which previously existed only on paper.

In terms of our relationship with the Institute, my role and that of the staff of Alberta Agriculture's Research Division was to help the Institute's Board of Directors carry out their responsibilities as laid out in the enabling legislation.

Institute activities were led in 1988-89 by the awarding of the first research grants to be made under the Institute's two major funding programs: Matching Grants and Research Coordination. I would like to commend the review committees established to analyze the proposed projects submitted for funding under these programs. Since requests well exceeded available funds, tough decisions had to be made and the committees' recommendations were very helpful in ensuring the Board awarded funds to the best and most meaningful proposals.

During the year, I was pleased to witness the Board begin to reach consensus on where it should concentrate its efforts and resources. Some of the Institute's key objectives, like research coordination, are easy to understand, but difficult to translate into effective programs and activities. One result was that planning began for a series of sector-by-sector reviews of agricultural research programs and activities in Alberta. These reviews promise to be of importance to future agricultural coordination, cooperation and support in the province.

I also wish to commend the staff of Alberta Agriculture's Research Division. Their efforts covered off the day-to-day needs of the Institute and allowed the Board to concentrate on such matters as its funding programs and review activities.

In addition to handling various administrative services, staff also prepared the various background and decision documents used by the Board members. In 1989-90, Research Division staff will continue to administer all the day-to-day operations as well as the special activities of the Institute.

During the year, I had many opportunities to witness the need for the types of service being offered by the Alberta Agricultural Research Institute. Generally, I found groups and individuals were interested in its efforts and that an expectation was building that the Institute would be able to answer a number of concerns within the research community.

In 1988-89, the Institute continued to make good progress. For this, credit goes to the Institute's Chairman, Mr. Bob Bogle, and a capable and thoughtful Board of Directors. With their support, the Institute will continue to advance to meet its challenging range of objectives and goals.

R.G. Christian, DVM
Executive Director

ORGANIZATION

The Alberta Agricultural Research Institute is a provincial Crown corporation established under the province's Agricultural Research Institute Act, 1987, as amended by the Alberta Agricultural Research Institute Amendment Act, 1988. The Institute reports to the Legislative Assembly through the Minister of Agriculture. It is governed by a Board of Directors appointed by the Minister.

The Institute's day-to-day administration is provided by Alberta Agriculture's Research Division. The Board has appointed the Division's Executive Director as Executive Director of the Institute.

The Board is also supported by five research committees, organized according to the Institute's five research priorities: agricultural processing; diversification; marketing; production efficiency; and resource conservation. Each committee is headed by a member of the Board of Directors.

Committee members can include additional members of the Board of Directors, recognized experts in the field, one staff member of Alberta Agriculture and a number of active producers and/or processors. All committee members must be appointed by the Chairman of the Institute's Board and affirmed by the full Board.

The committees are expected to advise the Board on the operation of the Institute. Their designated functions include reviewing research proposals, examining research needs and opportunities, and promoting research coordination as well as the transfer of new technology.

The Board of Directors

The Institute is governed by a 21-member Board of Directors appointed by the Minister of Agriculture. Collectively, the Board represents a number of different groups and agencies who perform or depend upon agricultural research.

A number of the directors' positions are assigned to specific institutions in the Institute's enabling legislation. (A copy of the Institute's governing Act was included in its 1987-88 Annual Report. A copy of the Institute's 1988 Amendment Act is reproduced later in this report.) These institutions include: Alberta Agriculture; the Faculty of Agriculture and Forestry at the University of Alberta; Agriculture Canada; the University of Calgary; the Western College of Veterinary Medicine; Alberta Advanced Education; either Alberta Technology, Research and Telecommunications or the Alberta Research Council; and the Legislative Assembly of Alberta. As well, the Act provides for strong private sector representation on the Board from both the farming and agri-business sectors of agriculture.

Research Coordination

An important responsibility of the Institute Board is to ensure research coordination wherever possible.

One means of achieving this is the Board's membership structure which is designed to assist both the promotion and coordination of agricultural research among the various groups of research performers and users. For instance, having leaders of the province's major agricultural research organizations on the Board enhances agricultural research coordination among these groups. This is accomplished through easier sharing of information on programs and policies among representatives of the major research performers in Alberta. These performers include federal, provincial, academic and private organizations.

In addition, Board members involved in farming or agri-business also provide input from the practical and/or commercial side of agriculture. Together these various perspectives on agriculture help to promote the exchange of information among all major segments of the agricultural community.

During the year, the Board specifically examined research activities being conducted by Agriculture Canada, the University of Alberta and Alberta Agriculture. Members toured the Alberta Special Crops and Horticultural Research Center in Brooks. The Board had previously visited Agriculture Canada's Research Station in Lethbridge, the University of Alberta's research facilities, Alberta Agriculture's Food Processing Development Center in Leduc and the facilities of the Alberta Research Council in Edmonton. The tours and the discussions held with researchers from various institutions provided background information needed for Board members to assess the existing level of research coordination and to identify areas needing improvement.

From these and other discussions, the Board identified a need to conduct formal sector-by-sector reviews of research activities and facilities in Alberta. Reviews are scheduled to being in 1989-90.

Administrative Support

Alberta Agriculture's Research Division provides day-to-day administrative services for the Institute. Division staff also prepare background information and policy and decision documents as required by the Board. The Institute employs one full-time staff member to assist in financial and administrative duties.

FUNDING PROGRAMS

In 1988-89, the Institute operated two funding programs to address specific needs and concerns within the agricultural research community. The first is the Research Coordination Program, which supports the Institute's wider mandate to promote research coordination in Alberta. The second is the Matching Grants Program, which is intended to generate greater support for agricultural research from the private sector.

In addition to these funding programs, the Institute Board had the responsibility to direct Alberta's participation in the National Agricultural Biotechnology Initiative. It also approved a new funding program to establish university research professorships in designated specialties.

Research Coordination Program

To provide active encouragement for agricultural scientists to coordinate their work and to maximize the exchange of research information, the Board established the Research Coordination Program. Under this program, financial assistance is given to agricultural researchers in order to promote coordination and communication among researchers in the same field who work in different organizations and different disciplines.

One of the difficulties faced by all researchers is to remain informed of other work or advances occurring not only in the same specialty, but also in other types of research which could have an impact in that area. Therefore, Research Coordination grants are intended to assist with those extra costs of travel and direct communication which would encourage closer working relationships among researchers.

For instance, approved funds could be used for travel to attend annual research review and planning meetings, and inter-laboratory travel to enable researchers to occasionally work in one another's facilities. In turn, it's expected that researchers who receive these grants and make use of this support would 'spread the news' among colleagues within their own immediate work areas. But, whatever the particular project, innovative ideas and approaches within the program are encouraged so long as the outcome would improve research coordination in Alberta.

The Research Coordination Program is the first program of its kind in Alberta, and is helping the Institute translate its mandate to promote research coordination into concrete action.

RESEARCH COORDINATION PROJECTS

Project Title and Objective	Researcher/ Institution/ *Location*	AARI Funding
DIVERSIFICATION		
Deer Farming Management Practices and Effects of Various Production Parameters To collect information concerning red deer farming; and to transfer this information to researchers in Western Canada.	J. Haigh Western College of Veterinary Medicine *Saskatoon*	$4,900
PRODUCTION EFFICIENCY		
Coordination of Research on the Spider Syndrome in Suffolk Sheep in Alberta To promote the exchange of information and coordination of research on the spider lamb syndrome in Alberta.	B. Matejka Alberta Sheep Breeders Association *Calgary*	4,500
RESOURCE CONSERVATION		
Coordination of Soil and Water Engineering Research in Alberta To coordinate the research activities at the University of Alberta and Agriculture Canada in the study of optimum seedbed conditions for cereals, oilseeds and special crops, methods of seeding and fertilizer application, soil compaction, and soil and water conservation.	K. Domier University of Alberta *Edmonton*	3,000
Soil Fauna and Structural Development under Different Tillage and Cropping Systems in the Peace River Region To integrate farmers' experiences with research results and to promote interactions between university staff, producers and scientists concerning tillage and cropping systems in the Peace River region.	M.Arshad Agriculture Canada *Beaverlodge*	3,950

Matching Grants Program

In its effort to increase private sector participation in agricultural research, the Institute started a Matching Grants Program in 1988-89. Under this program, the Institute matches, usually on a 50:50 basis, contributions for approved research projects.

The program has a number of guidelines; however, the following is especially important. To qualify for the Matching Grants Program, researchers must have already obtained support from an eligible source. Such sources include private companies, foundations, individuals, farm groups, non-Alberta provincial agencies, and designated federal agencies. Note, federal funds must be 'new' dollars, which means they must not have been diverted from an existing program or funding which already applied to Alberta.

MATCHING GRANTS PROJECTS

Project Title and Objective	Researcher/ Institution/ *Location*	Other Sponsors	AARI Funding
AGRICULTURAL PROCESSING			
Technological Investigations for Development of Whey-Based Beverages To study the problem of sediment formation in whey-fruit juice products; and to verify the effectiveness of proposed treatments under conditions of UHT processing.	P. Jelen University of Alberta *Edmonton*	Palm Dairies Limited Wisconsin Milk Marketing Board, Inc.	$22,138
Development of Vegetable Fibres as a Food Ingredient To develop technologies for the production of food fibres from rhubarb (or similar vegetables); and to investigate their use as an ingredient in food products, especially fabricated foods requiring a fibrous texture.	B. Ooraikul University of Alberta *Edmonton*	UFL Foods Inc. H.P.S. Investments Ltd.	37,500
Crystallization Control of Honey Products To study the effect of temperature at the time of packing, and dextrose/water ratios of the honey on product crystallization.	P. Sporns University of Alberta *Edmonton*	Alberta Honey Producers Co-operative Limited	14,700
Optimization of Modified Atmosphere Packaging to Extend the Market Life of Meat and Meat Products To determine the optimum modified atmosphere for market life extension of a range of meats and meat products prepared as sandwiches; and to determine the microbiological safety of products that have been seeded with pathogenic bacteria and stored under conditions simulating good and abusive storage.	M. Stiles University of Alberta *Edmonton*	Gainers Inc.	15,000
Research and Development of UHT Whipping Cream with an Extended Shelf Life To study the effect of milk quality and selected variables on the physical and chemical characteristics of fresh cream and storage stability of UHT whipping cream.	L. Ozimek University of Alberta *Edmonton*	Palm Dairies Limited	13,500
Improving Meat Quality through Pre-Slaughter Electrolyte Control in Pigs To examine the efficiency of a new slow release magnesium supplement in reducing pale-soft-exudative (PSE) pork in halothane-positive pigs.	A. Schaefer Agriculture Canada *Lacombe*	Verla Pharm Company	2,000
Optimization of Chilling Systems for Red Meat Carcasses To complete the construction of a research blast-chill unit for chilling red meat carcasses at temperatures between 0° and -40° C; and to determine the effects of very low chilling temperatures on product yields, quality, sensory value and processing attributes in beef and pork.	S. Morgan-Jones Agriculture Canada *Lacombe*	Energy, Mines, Resources Canada Alberta Cattle Commission	75,000
DIVERSIFICATION			
Ensiling of Rumen Contents and Whole Blood Using Cereal Straw, Cereal Grain and Bacterial Inoculant To compare the ensiling quality of mixtures of paunch residue and whole blood mixed with ground cereal straw or cracked barley grain; and to evaluate the efficacy of a lactobacillus inoculant in improving fermentation quality of the waste mixtures.	R. Grimson Lakeside Farm Industries *Brooks*	Lakeside Farm Industries	8,000

Project Title and Objective	Researcher/ Institution/ *Location*	Other Sponsors	AARI Funding
Technological, Biochemical and Nutritional Aspects of Production of Allergy-Free Infant Formulae Based on Cow's Milk To apply recent technological processes to produce allergy-free infant formulae based on cow's milk.	L. Ozimek University of Alberta *Edmonton*	Alberta Dairymen's Association	$19,760
Combination of Canola Meal and Field Peas for Use in Rations for Market Pigs To explore the complementarity of cull or off-grade field peas and canola meal when used as protein supplements in pig rations; and to compare their efficacies with both low and high protein barley.	J. Bell University of Saskatchewan *Saskatoon*	Canola Council of Canada	18,910
High Quality Semidwarf Winter Wheats for Southwest Alberta To identify hard red winter wheats that are high yielding, hardy, stiff-strawed and high quality.	J. Thomas Agriculture Canada *Lethbridge*	Alberta Winter Wheat Association Beswick Farms	3,250
MARKETING			
Delivery of Extension Services to Alberta Hog Producers To assess the informational needs of Alberta hog producers; and to examine the delivery of extension services to hog producers by the Alberta Pork Producers Development Corporation, private industry, the University of Alberta and government.	M. Hawkins University of Alberta *Edmonton*	Alberta Pork Producers Development Corporation	11,000
Monitoring of On-Farm Voltage Disturbances To define the nature and extent of on-farm power supply disturbances in Alberta.	J. Leonard University of Alberta *Edmonton*	Canadian Electrical Association	18,110
Effects of Variety, Location and Season on Quality, Uniformity and Marketability of Oats Grown in Alberta To study the effects of location, season and variety on quality, uniformity and marketability of oats grown in six diverse agro-climatic regions of Alberta; and to propose new breeding and selection methods for oat quality improvement.	S. Kibite Agriculture Canada *Lacombe*	The Quaker Oats Company of Canada Limited	9,400
PRODUCTION EFFICIENCY			
Spread and Survival of Toadflax Growing on Cropped or Fallow Land To determine seed production per shoot of toadflax; and to study seed dormancy and viability of toadflax plants.	J. King University of Alberta *Edmonton*	Western Grains Research Foundation	24,550
Understanding and Alleviating Green Seeds in Spring Canola To assess the impact of frost and freezing tolerance on the degreening process during seed maturation in *Brassica napus* and *B. campestris*.	A. Johnson-Flanagan University of Alberta *Edmonton*	Western Grains Research Foundation	15,000
Evaluation of the Safety and Efficacy of an Experimental *Mycoplasma Bovis* Vaccine To conduct a trial to determine the efficacy of an experimental *Mycoplasma bovis* vaccine; and, upon collection of epidemiologic information regarding *M. bovis* infection, to identify the factors which may predispose animals to the disease or are associated with the disease.	G. Jim Feedlot Health Management Services *Okotoks*	Langford Inc. Thiessen Farms Ltd.	15,850

Project Title and Objective	Researcher/ Institution/ *Location*	Other Sponsors	AARI Funding
Evaluating Air Exchange Rate, Misting and Litter Condition on Heavy Turkey Performance To measure the change in particle concentration and mean particle size for misted and non-misted environments; and to assess turkey health relative to two levels of dust concentration.	J. Feddes University of Alberta *Edmonton*	Alberta Turkey Growers Marketing Board	$5,870
Epidemiological Investigation of the Pattern of Shipping Fever within Sale, Transport and Feedlot Groups To describe how the pattern of shipping fever is influenced by auction market, transportation and feedlot pen conditions; to determine if shipping fever is communicable from calf to calf within transport trucks, or within large pens at the feedlot; and to develop clinical trial designs which will help to improve future commercial efficacy tests of shipping fever vaccines and other preventive measures.	C. Ribble Western College of Veterinary Medicine *Saskatoon*	Agriculture Canada Ontario Cattlemen's Association	6,515
Decreasing Embryo Mortality by Dietary Supplementation of an Essential Fatty Acid in Early Gestation To determine the influence of graded levels of linoleic acid in gestation and lactation diets on: embryonic mortality, immunoglobulin levels in the sow and piglet blood and in the sow's colostrum and milk, litter size at farrowing and the development of the immune function in the young pig.	F. Aherne University of Alberta *Edmonton*	Alberta Pork Producers Marketing Board	11,000
Influence of Bovine Somatotropin Injection on Nutritional Requirements, Metabolic Responses, Milk Quality and Reproduction in Dairy Cows To determine the influence of long-term bovine somatotropin (BST) injection on nutritional requirements of dairy cattle, milk yield and composition, biological efficiency of milk production, reproductive performance and the productive life of dairy cows.	J. Kennelly University of Alberta *Edmonton*	Cyanamid Canada Inc.	71,000
Development, Enhancement and Evaluation of Alberta Protein Sources for Cattle To develop and enhance various protein sources; and to evaluate the resulting protein sources and other protein sources which are currently underused.	J. Kennelly University of Alberta *Edmonton*	American Cyanamid Company Canola Council of Canada The Flax Council of Canada Imperial Oil Limited	80,000
Effect of Ammoniation on Barley Preservation and Feeding Value To determine if damp (20% moisture) barley can be successfully preserved with ammonia; and to determine if ammoniated barley (20% and 30% moisture) is superior to dry grain in diets for feedlot cattle.	G. Mathison University of Alberta *Edmonton*	Sherritt Gordon Limited	23,400
Dietary Protein and Reproductive Fitness in Male Broiler Breeders To demonstrate the effect of reduced dietary intake of protein on male broiler breeders; and to determine a physiological explanation for the relationship between dietary intake of protein and energy and fertility.	F. Robinson University of Alberta *Edmonton*	Indian River International	3,918
Research and Development of Specific Tests to Detect Leptospiral Infection in Livestock To assess possible improvements to the enzyme-linked immunosorbent assay (ELISA) in the detection of leptospirosis by testing antigens from different serovars.	C. Darcel University of Lethbridge *Lethbridge*	Palliser Animal Health Laboratories Ltd.	17,750

Project Title and Objective	Researcher/ Institution/ *Location*	Other Sponsors	AARI Funding
Clinical Field Trial to Evaluate the Efficiency of Preimmunizing Calves with a Commercial *Pasteurella* Vaccine To determine the efficacy of the *Pasteurella haemolytica* vaccine Presponse in reducing disease and death due to bovine respiratory disease (BRD) in ranch and auction market cattle.	B. Thorlakson Animal Research *Airdrie*	Langford Inc. Animal Research International	$26,928
Nutritional, Physiological and Microbial Factors that Contribute to Productive Efficiency in Dairy Cows To determine the microbial and physiological basis for individual differences in feed utilization between high- and low-producing dairy cows; and to determine the feeding value of various alternative feedstuffs that have potential to enhance milk production level and efficiency, milk composition and rumen characteristics in high-producing dairy cows.	L. Rode Agriculture Canada *Lethbridge*	Alberta Milk Producers' Association Ltd. Alberta Cattle Commission	30,000
New Tools to Reduce the Risk of Shipping Fever To develop improved methods of predicting which cows are susceptible to BRD so that preventive measures can be targeted to high risk groups; to detect clinically ill calves so treatment can be started; and to predict the outcome of disease so managers can decide whether treatment is worthwhile.	M. Campos Veterinary Infectious Disease Organization *Saskatoon*	Alberta Cattle Commission	33,361
Development of a Vaccine for Colisepticemia in Turkeys To identify the strain of *Escherichia coli* causing the respiratory disease colisepticemia and to genetically alter these bacteria to produce a vaccine which can be delivered to turkeys in their drinking water.	A. Potter Veterinary Infectious Disease Organization *Saskatoon*	Saskatchewan Turkey Producers Marketing Board Veterinary Infectious Disease Organization	36,200
Genetic Improvement of Canola through Biotechnology: A Somaclonal Variation Approach To develop an efficient protoplast system for producing somaclonal variants; and to produce, via somaclonal variation, new canola varieties with desirable traits including altered seed fatty acid composition, low glucosinolate content, early maturity, blackleg resistance and shattering tolerance.	W. Scowcroft Biotechnica Canada Inc. *Calgary*	Biotechnica Canada Inc.	75,000
Evaluation of a New Electrolyte Solution for Use in Milk-Fed Diarrheic Calves To develop a new oral electrolyte solution to be used in the treatment of calf scours.	J. Naylor Western College of Veterinary Medicine *Saskatoon*	Langford Inc. Biostar Inc.	6,000
RESOURCE CONSERVATION			
Metering and Placement of Urea Super Granules To conduct studies on transport, metering and placement of urea super granules; and to compare nitrogen uptake from urea super granules with uptake from granular urea in yield scale trials.	K. Domier University of Alberta *Edmonton*	Norsk Hydro	8,200
Determination of the Optimum Seedbed Conditions for Flax and Canola To study the requirements for producing an optimum seedbed for flax and canola; and to investigate the relationship between the moisture gradient in the soil and seeding depth.	K. Domier University of Alberta *Edmonton*	The Flax Council of Canada	23,700

Project Title and Objective	Researcher/ Institution/ *Location*	Other Sponsors	AARI Funding
Survival of and Contribution to Crop Growth by a Penicillium Species Introduced into the Rhizosphere of Barley under Field and Lab Conditions To refine cultural and microscopic techniques to increase scientific knowledge about plant-microbe interactions in the rhizosphere.	W. McGill University of Alberta *Edmonton*	Elanco Philom Bios	$15,226
Development of an Alfalfa Inoculant for Improved Nodulation and Nitrogen Fixation at Low Soil Temperatures To select strains of *Rhizobium meliloti* and develop *Rhizobium* delivery systems capable of improved nodulation and nitrogen fixation at low soil temperatures.	W. Rice Agriculture Canada *Beaverlodge*	Philom Bios	28,450
Influence of Climatic Factors on Forage and Crop Production at Sites in East Central Alberta To measure precipitation, evaporation, soil moisture and temperature; and to monitor the influence of these factors on forage and crop production.	D. Westerlund Chinook Applied Research Association *Oyen*	Chinook Applied Research Association Atmospheric Environment Service	5,845

National Agricultural Biotechnology Initiative

The National Agricultural Biotechnology Initiative, announced in 1987, is intended to assist the private sector in agricultural research, and especially to help it commercialize new biotechnology products. This federal government program is scheduled to last three years. Total cost to the federal government is estimated at $25 million. All four Western provinces are eligible to participate, but they are required to match federal funds for projects approved in their respective regions. The Institute Board directs Alberta's participation in the program and decides on joint funding of projects approved under the Initiative.

Research Professorship Program

During its reviews of agricultural research, the Institute Board found several areas of importance to Alberta's agricultural sector which require additional professional expertise to develop benefits for the industry. The mechanism selected by the Board to provide this expertise is research professorships located at Alberta universities.

The subjects being considered for professorships include animal welfare or ethology, food packaging and preservation, marketing of value-added agricultural and food products, and resource conservation. Each professorship would be approved for a defined term, and the person selected would be expected to help train other individuals to continue the work in the particular specialty.

ALBERTA LEGISLATURE

OFFICE OF THE AUDITOR GENERAL

AUDITOR'S REPORT

To the Members of the Board of the
Alberta Agricultural Research Institute

I have examined the balance sheet of the Alberta Agricultural Research Institute as at March 31, 1989 and the statement of revenue, expenditure and unexpended funds for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Institute as at March 31, 1989 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding period.

Donald D. Salmon

FCA
Auditor General

Edmonton, Alberta
July 26, 1989

ALBERTA AGRICULTURAL RESEARCH INSTITUTE

BALANCE SHEET

AS AT MARCH 31, 1989

	1989	1988
ASSETS		
Cash	$1,457,361	$130,355
Due from Government of Canada	580,000	-
	$2,037,361	$130,355
LIABILITIES AND UNEXPENDED FUNDS		
Accounts payable (Note 3)	$ 388,149	$ 77,949
Unexpended funds	1,649,212	52,406
	$2,037,361	$130,355

The accompanying notes are part of these financial statements.

OFFICE OF THE AUDITOR GENERAL

ALBERTA AGRICULTURAL RESEARCH INSTITUTE

STATEMENT OF REVENUE, EXPENDITURE AND UNEXPENDED FUNDS

FOR THE YEAR ENDED MARCH 31, 1989

	April 1, 1988 to March 31, 1989	July 15, 1987 to March 31, 1988
REVENUE		
Contributions from the General Revenue Fund (Note 4)	$1,500,000	$ 50,000
Contributions from the Government of Canada:		
Western Diversification Program	550,000	-
Solar Energy Research and Development Program	67,331	-
Contributions from industry	71,276	40,843
Interest	27,352	23,689
Administration fees on contracted research	6,410	-
Grant from the Alberta Heritage Savings Trust Fund	-	16,003
	2,222,369	130,535
EXPENDITURE		
Research grants	392,898	54,843
Research extended projects	134,607	-
Administration expenses (Note 5)	97,469	56,676
Administered awards	589	-
Farming for the Future program conference costs	-	16,003
	625,563	127,522
Excess of revenue over expenditure	1,596,806	3,013
Unexpended funds at beginning of period	52,406	-
Transfer from Alberta Agricultural Research Trust	-	49,393
Unexpended funds at end of period	$1,649,212	$ 52,406

ALBERTA AGRICULTURAL RESEARCH INSTITUTE

NOTES TO THE FINANCIAL STATEMENTS

MARCH 31, 1989

Note 1 Authority

The Alberta Agricultural Research Institute operates as a provincial corporation under the authority of the Alberta Agricultural Research Institute Act, Chapter A-13.7, 1987. The Alberta Agricultural Research Institute Act, which came into force on July 15, 1987, repealed the Alberta Agricultural Research Trust Act. Liabilities and property of the Alberta Agricultural Research Trust existing at that date became liabilities and property of the Institute.

Note 2 Significant Accounting Policies

Research Grants

Research grants are recorded in these financial statements when approved for payment to researchers' accounts. Unexpended balances of grant funds held in researchers' accounts are not reflected in these financial statements.

Contributions from Industry

Contributions from industry represent only cash donations to the Institute for specific research projects and do not include donations in kind.

Changes in Financial Position

A statement of changes in financial position is not provided as disclosure in these financial statements is considered to be adequate.

Note 3 Accounts Payable

Accounts payable consist of the following:

	1989	1988
Research grants	$294,657	$22,000
Refunds of contributions from industry	54,693	-
Extended research projects	36,793	-
Refunds of grants from the Alberta Heritage Savings Trust Fund	-	23,997
Administration expenses	-	17,351
Farming for the Future program conference costs	-	14,601
Other	2,006	-
	$388,149	$77,949

Note 4 Contributions from the General Revenue Fund

The Province of Alberta has agreed to provide contributions to the Institute totalling $2,000,000 over a four year period commencing in 1988-89. The contributions of $1,500,000 shown in these financial statements are part of this agreement.

Contributions from the General Revenue Fund are subject to the approval of annual appropriations. The Institute may be required to refund unexpended portions of contributions held at the end of a fiscal year.

Note 5 Administration Expenses

Administration expenses consist of the following:

	April 1, 1988 to March 31, 1989	July 15, 1987 to March 31, 1988
Board members' remuneration and expenses:		
Chairman	$26,975	$20,732
Other Board members	58,508	17,480
	85,483	38,212
Supplies and services	7,899	-
Printing of research project reports	4,087	14,634
Miscellaneous	-	3,830
	$97,469	$56,676

Certain salaries and other overhead costs, as well as accommodation costs incurred in the administration of the Institute, have been borne by the General Revenue Fund and are not reflected in these financial statements.

Note 6 Due from the Government of Canada

Pursuant to an agreement between the Government of Canada's Department of Western Economic Diversification, the Government of Alberta, and the Alberta Agricultural Research Institute, Canada will make a non-repayable contribution to the Institute for agricultural research activities in the total sum of $4,000,000 as follows:

1988-89	$ 550,000
1989-90	1,000,000
1990-91	1,000,000
1991-92	1,000,000
1992-93	450,000

The 1988-89 contribution was received after March 31, 1989 and is included in the amount due from the Government of Canada reported on the balance sheet.

Note 7 Commitments

As at March 31, 1989, the Institute had commitments of $454,900 with respect to grant applications approved by the Board of Directors, but for which all conditions of payment had not been met.

Note 8 Approval of Financial Statements

These financial statements were approved by management.

BOARD OF DIRECTORS

Chairman:

Mr. Bob Bogle
MLA
Taber-Warner

Vice-Chairman:

Mr. Ben McEwen
Deputy Minister
Alberta Agriculture

Members:

Mr. Jack Ady
MLA
Cardston

Mr. Don Althen
Producer
Del Bonita

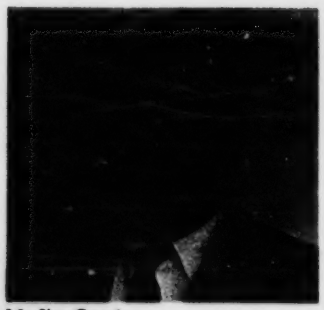
Dr. Roy Berg*
Dean
Faculty of Agriculture and Forestry
University of Alberta

Mr. Norman Caukill
Producer
Caroline

Dr. Dan Cornish
President
Olds College

Mr. Bill Devereux
Producer
Fort Saskatchewan

Dr. Gordon Dorrell
Agriculture Canada
Research Branch
Ottawa



Mr. Jim Gray*
Biotechnica International of
Canada Inc.
Calgary

Dr. Gavin Hamilton
Dean
Western College of
Veterinary Medicine
Saskatoon

Members:

Mr. Peter Hill
Alberta Advanced Education
Edmonton

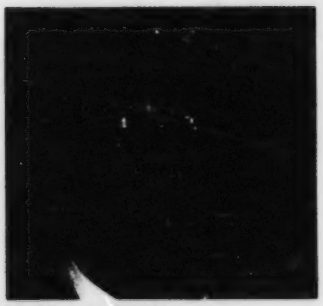
Mr. Ralph Jesperson
Unifarm
Spruce Grove

Mr. David Munro
Producer
Innisfail

Mr. Nigel Pengelly
MLA
Innisfail

Mr. Bryan Perkins
Producer
Wainwright

Dr. David Reid
University of Calgary
Calgary

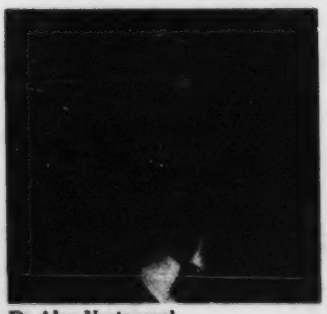


Mr. Norman Storch
Producer
Hanna

Mrs. Dolores Thornton
Producer
Calgary

Mr. Tom Towers
Producer
Red Deer

Dr. Ed Tyrchniewicz
Dean
Faculty of Agriculture and Forestry
University of Alberta



Dr. Alan Vanterpool
Assistant Deputy Minister
Alberta Technology, Research and Telecommunications

Absent

Mrs. Shirley Smith*
Producer
Bonnyville

*resigned prior to March 31, 1989

RESEARCH COMMITTEE MEMBERS

Agricultural Processing

Chairman:

Mr. Tom Towers
Producer
Red Deer

Members:

Dr. Bill Ballantyne
Gainers Inc.
Edmonton

Mr. Sandy Bibby
UFL Foods Inc.
Edmonton

Dr. Stephen Morgan-Jones
Agriculture Canada
Lacombe

Dr. Buncha Ooraikul
Department of Food Science
University of Alberta
Edmonton

Mr. Bryan Perkins
Producer
Wainwright

Dr. Dave Schroder
Food Processing Development Centre
Alberta Agriculture
Leduc

Mrs. Dolores Thornton
Producer
Calgary

Diversification

Chairman:

Mr. Norman Caukill
Producer
Caroline

Members:

Dr. Tony Evans
Norac Technologies
Edmonton

Mr. Gary Haley
Palliser Grain
Calgary

Mr. Tom Krahn
Alberta Special Crops & Horticultural Research Centre
Alberta Agriculture
Brooks

Dr. Ted Mitenko
Alta Genetics Inc.
Calgary

Dr. Lu Piening
Agriculture Canada
Lacombe

Mr. Lud Prudek
Producer
Bow Island

Mr. Gordon Wells
Biotechnica Canada Inc.
Calgary

Dr. Fred Wolfe
Department of Food Science
University of Alberta
Edmonton

Marketing

Chairman:

Mr. Don Althen
Producer
Del Bonita

Members:

Mr. Bob Balisky
Producer
Debolt

Dr. Gordon Dorrell
Agriculture Canada
Lethbridge

Mr. Jim Graham
Producer
Rainier

Mr. Elden Kaun
Producer
Penhold

Mr. David Keeler
Producer
Raymond

Mr. Ken Stickland
KenAgra Management Services Ltd.
Edmonton

Dr. Ed Tyrchniewicz
Dean
Faculty of Agriculture
and Forestry
University of Alberta

Mr. Wayne Wilderman
Producer
Blackie

Mr. Cliff Wulff
Marketing Development
Alberta Agriculture
Edmonton

Production Efficiency

Chairman:

Mr. Bill Devereux
Producer
Fort Saskatchewan

Members:

Mr. Jean Crepin
Norwest Soil Research Ltd.
Edmonton

Mr. Gary Gill
Producer
Legal

Mr. Ray Grimson
Lakeside Research Ltd.
Brooks

Dr. Jim Helm
Plant Industry Division
Alberta Agriculture
Lacombe

Dr. Maurice Moloney
Producer
Department of Biological Sciences
University of Calgary

Mr. Albert Pimm
Producer
Grimshaw

Dr. Mick Price
Department of Animal Sciences
University of Alberta
Edmonton

Dr. Otto Radostits
Western College of Veterinary
Medicine
Saskatoon

Dr. David Reid
Department of Biological Sciences
University of Calgary

Resource Conservation

Chairman: **Dr. Dan Cornish**
President
Olds College

Members:

Mr. Paul Barlott
Conservation and Development Branch
Alberta Agriculture
Edmonton

Dr. Bob Fessenden
Alberta Research Council
Edmonton

Mr. Spencer Hilton
Alberta Conservation Tillage Society
Strathmore

Dr. Wayne Lindwall
Agriculture Canada
Lethbridge

Dr. Bill McGill
Department of Soil Science
University of Alberta
Edmonton

Mr. Robert Snider
Producer
New Norway

Mr. Norman Storch
Producer
Hanna

Mr. C.S. (Johnny) Vos
Producer
Keg River

APPENDIX

ALBERTA AGRICULTURAL RESEARCH INSTITUTE AMENDMENT ACT, 1988

CHAPTER 2

(Assented to July 6, 1988)

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of Alberta, enacts as follows:

1 *The Alberta Agricultural Research Institute Act is amended by this Act.*

2 *Section 5(2)(f) is repealed and the following is substituted:*

(f) such number of members of the Legislative Assembly as are appointed by the Minister, and